

Abstract

A method of longitudinal recording using a medium with a magnetically soft underlayer is described. The method includes lowering the longitudinal coercivity in a magnetic domain in the magnetic recording medium by generating a vertical component of magnetic flux in the magnetic recording medium and writing a longitudinal orientation in the magnetic domain in the magnetic recording medium by generating a larger horizontal component of magnetic flux in the magnetic recording medium using the write head. Optionally the method further includes magnetically saturating the magnetically soft underlayer after lowering the longitudinal coercivity to limit the vertical component of the magnetic flux. The recording medium has a magnetic recording layer, a spacer layer and a soft underlayer. In one embodiment the soft underlayer is an antiferromagnetically coupled magnetic layer stack with two soft magnetic layers separated by a non-magnetic spacer layer selected to achieve the antiferromagnetic coupling.